General Specifications

Item	Specification
Lubricants and Chemicals	
SAE 5W-20 Premium Synthetic Blend Motor Oil, XO-5W20-QSP	WSS-M2C153-H

Torque Specifications

Description	Nm	lb-in
Battery ground bolt	10	89
Throttle body bolts	9	80
Fuel injection supply manifold bolts	10	89
42-pin engine bulkhead electrical connector bolt	6	53
Ignition coil cover bolts	10	89
Battery supply wire nut to power distribution box	8	71
Battery supply wire nut to generator	8	71

Fuel Charging and Controls

The fuel injection supply manifold:

- receives fuel from the fuel supply line.
- delivers fuel to the fuel injector.

The throttle body:

- controls air supply to the intake manifold by positioning the throttle plate.
- connects the accelerator cable and, if equipped, the speed control actuator cable to the throttle lever.
- is not adjustable.
- cannot be cleaned.

The fuel injector:

- is electrically operated by the powertrain control module (PCM).
- has an internal solenoid that opens a needle valve to inject fuel into the lower intake manifold.
- atomizes the fuel as the fuel is delivered.
- is deposit-resistant. Do not clean.

The fuel pressure relief valve:

- is used to inspect and relieve fuel pressure.

Fuel Charging and Controls

Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

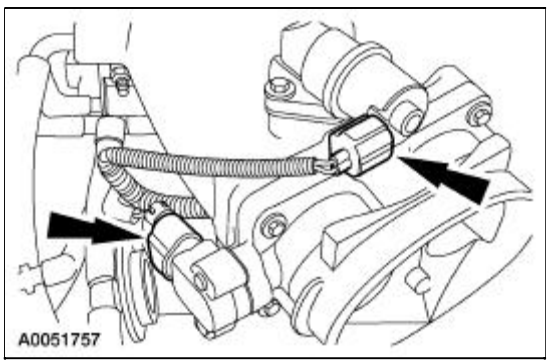
Throttle Body

Removal and Installation

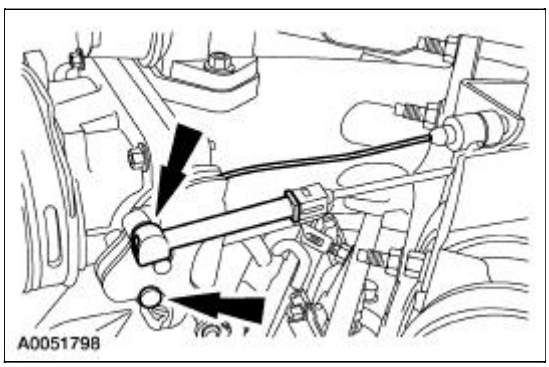
WARNING: Do not smoke or carry lighted tobacco or open flame of any type when working on or near any fuel related components. Highly flammable mixtures are always present and can ignite. Failure to follow these instructions can result in personal injury.

CAUTION: The throttle body bore and plate area have a special coating and cannot be cleaned.

1. Remove the air cleaner outlet tube. For additional information, refer to Section 303-12 .
2. Disconnect the throttle position (TP) sensor and the idle air control (IAC) valve electrical connectors.

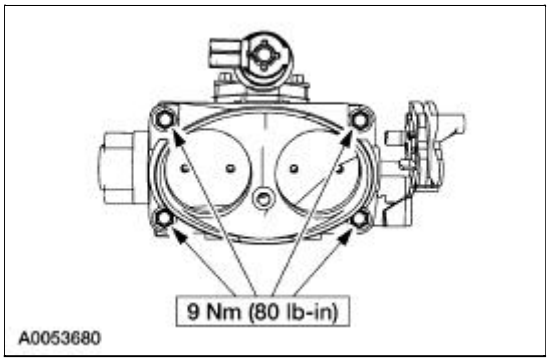


3. Disconnect the accelerator controls.
   - Disconnect the accelerator cable.
   - If equipped, disconnect the speed control cable.



4. **NOTE:** Discard the throttle body gasket after removing the throttle body.

   Remove the bolts and the throttle body.



5. **NOTE:** Install a new throttle body gasket.

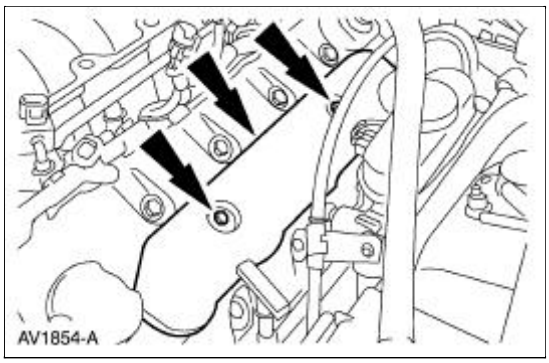
   To install, reverse the removal procedure.

Fuel Charging Wiring Harness

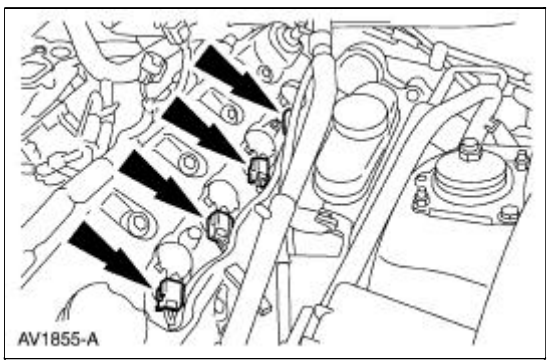
Removal and Installation

WARNING: Do not smoke or carry lighted tobacco or open flame of any type when working on or near any fuel related components. Highly flammable mixtures are always present and can ignite. Failure to follow these instructions can result in personal injury.

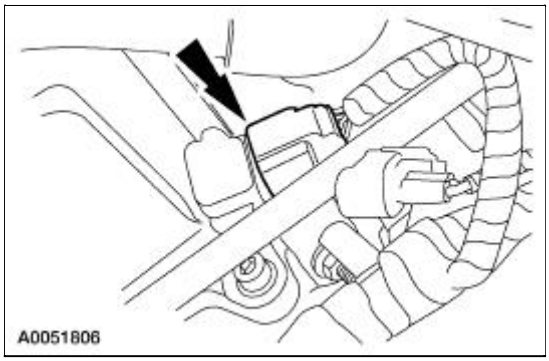
1. Disconnect the battery ground cable.
2. Remove the exhaust gas recirculation (EGR) valve and the exhaust manifold to EGR valve tube. For additional information, refer to Section 303-08 .
3. Remove the bolts and the LH ignition coil cover.



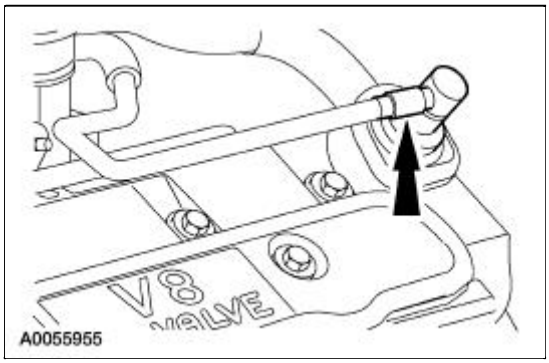
4. Disconnect the LH ignition coil electrical connectors.



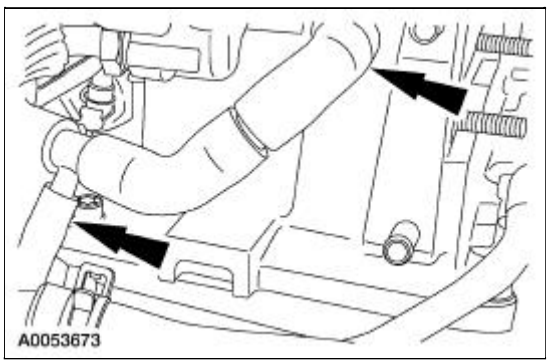
5. Disconnect the barometric pressure (BARO) sensor electrical connector.



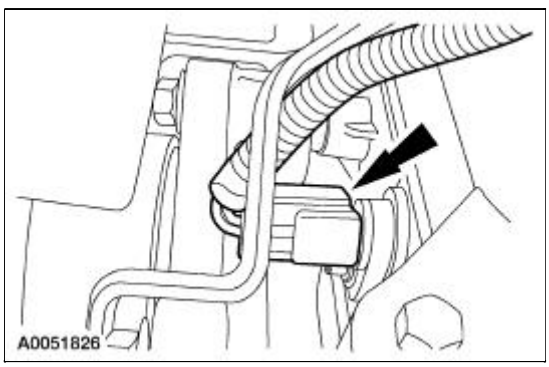
6. Remove the PCV valve.



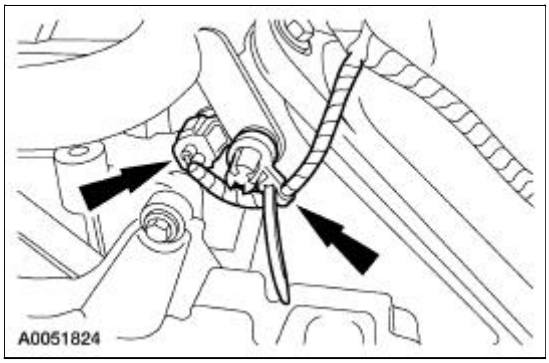
7. Disconnect and remove the PCV hose.



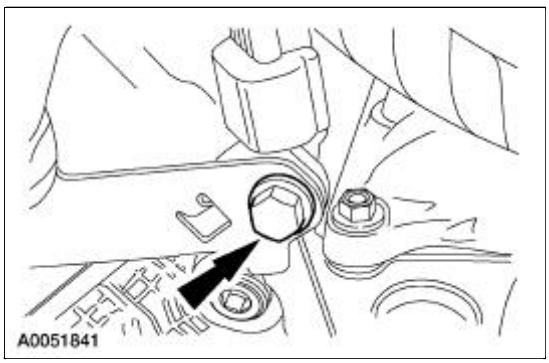
8. Disconnect the camshaft position (CMP) sensor electrical connector.



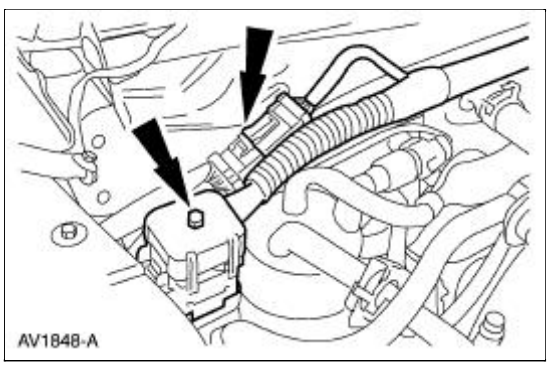
9. Disconnect the engine coolant temperature (ECT) sensor electrical connector and unclip the harness from the stud.



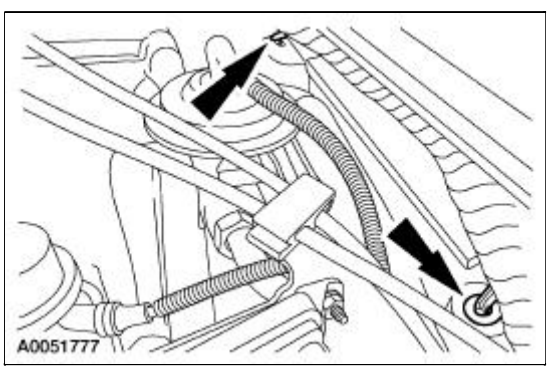
10. Remove the fuel charging wiring harness bracket bolt.



11. Disconnect the following:
    - The 42-pin engine bulkhead electrical connector.
    - The 16-pin electrical connector.

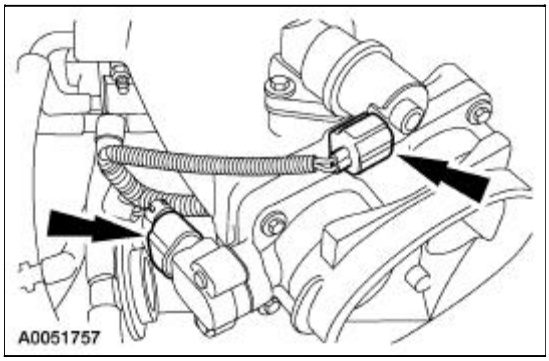


12. Separate the wiring harness from the dash panel.

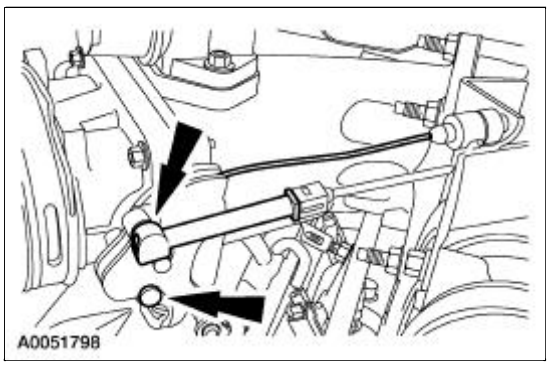


13. Remove the air cleaner outlet pipe. For additional information, refer to Section 303-12 .

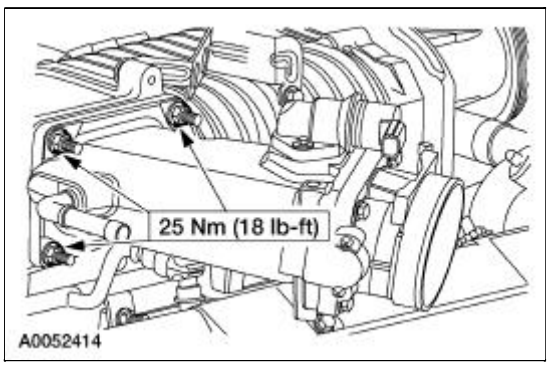
14. Disconnect the throttle position (TP) and the idle air control (IAC) valve electrical connectors.



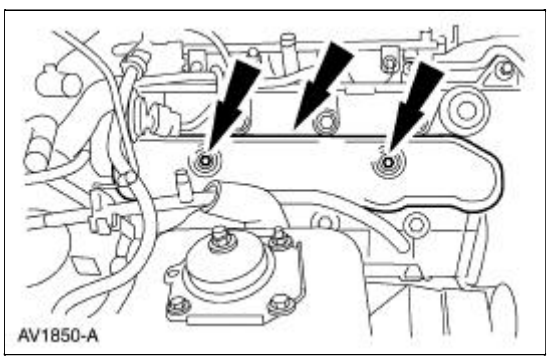
15. Disconnect the accelerator cable, and if equipped, the speed control cable.



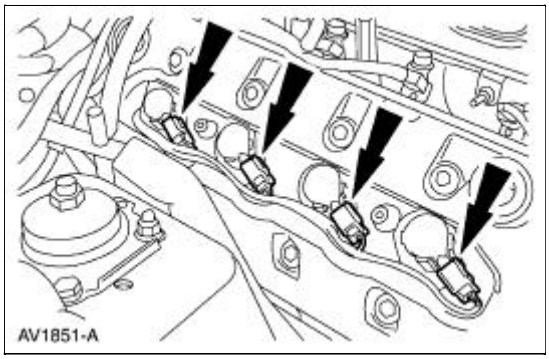
16. Remove the nuts and the throttle body spacer assembly.



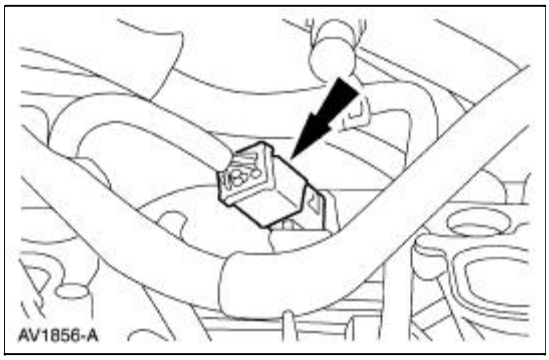
17. Remove the bolts and the RH ignition coil cover.



18. Disconnect the RH ignition coil electrical connectors.

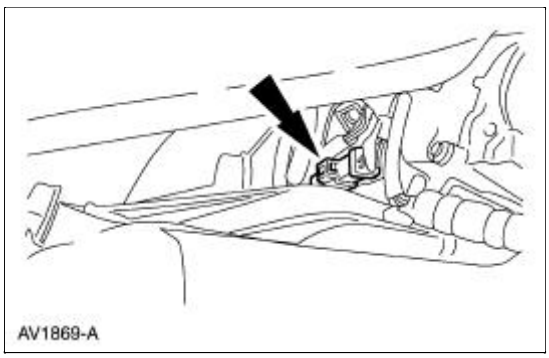


19. Disconnect the transmission main control harness electrical connector.

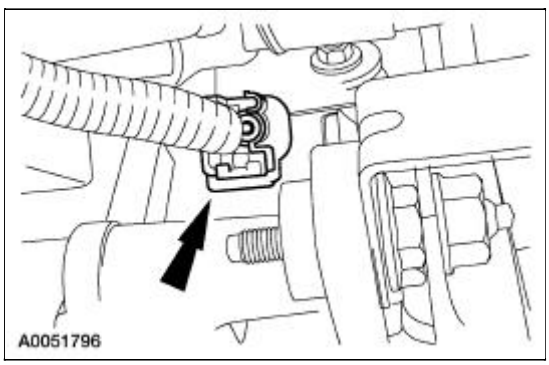


20. Raise and support the vehicle. For additional information, refer to Section 100-02 .

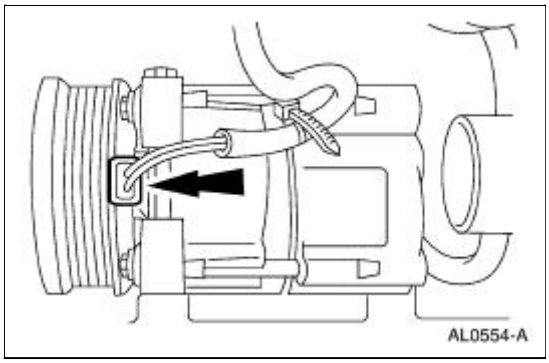
21. Disconnect the RH heated oxygen sensor (HO2S) electrical connector.



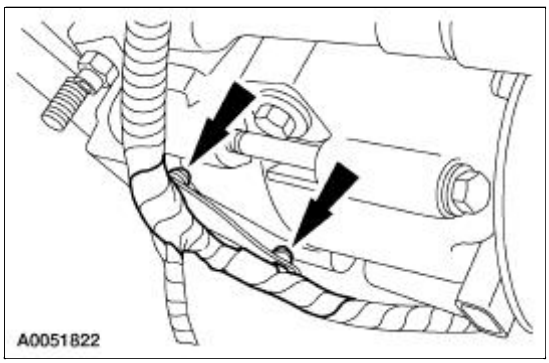
22. Disconnect the crankshaft position (CKP) sensor electrical connector.



23. Disconnect the air conditioning compressor electrical connector.



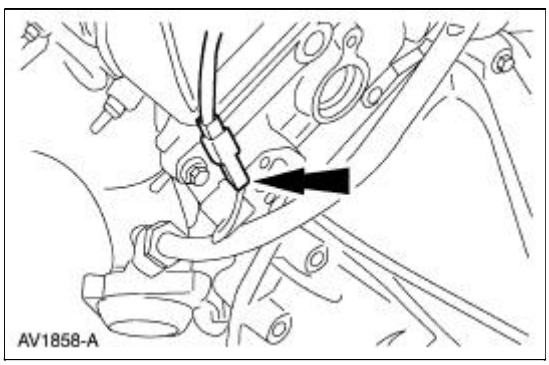
24. Unclip the harness from the bracket.



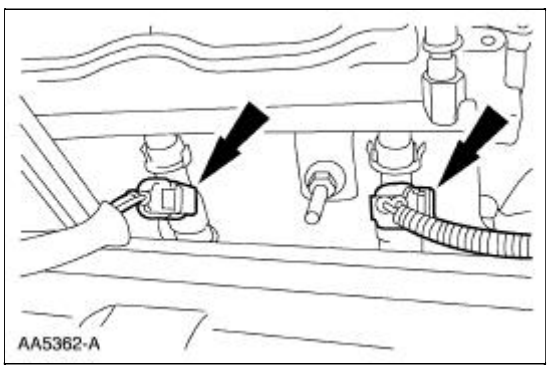
25. Lower the vehicle.

26. **NOTE:** LH side shown, RH side similar.

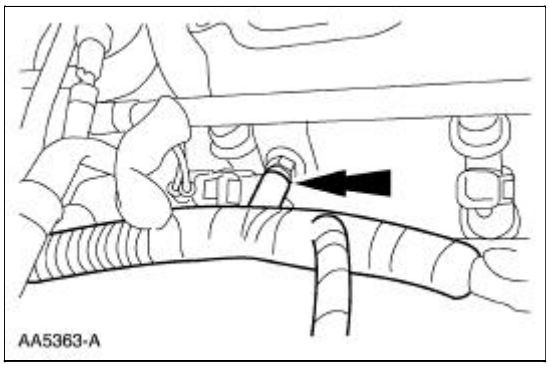
    Disconnect the two radio ignition interference capacitor electrical connectors.



27. Disconnect the eight fuel injectors.



28. Separate the harness from the fuel supply manifold studs in four places and remove the fuel charging wiring harness from the vehicle.



29. To install, reverse the removal procedure.

Fuel Injection Supply Manifold and Fuel Injector

Material

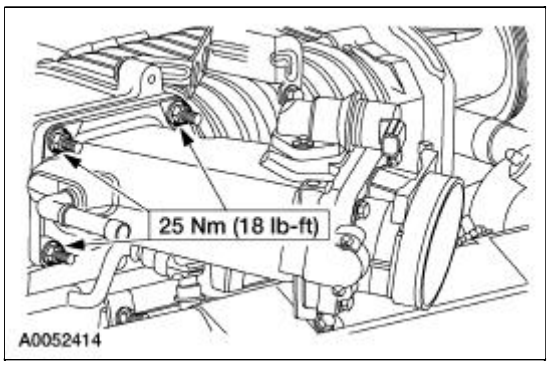
Item	Specification
SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP	WSS-M2C153-H

Removal and Installation

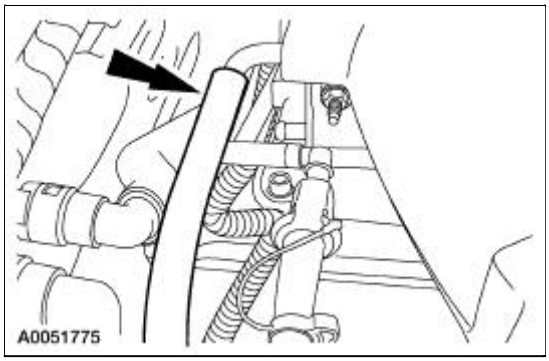
WARNING: Do not smoke or carry lighted tobacco or open flame of any type when working on or near any fuel related components. Highly flammable mixtures are always present and can ignite. Failure to follow these instructions can result in personal injury.

WARNING: Fuel in the fuel system remains under high pressure even when the engine is not running. Before working on or disconnecting any of the fuel lines or fuel system components, the fuel system pressure must be relieved. Failure to follow these instructions can result in personal injury.

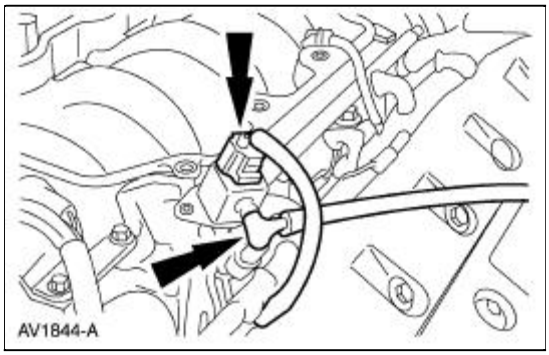
1. Disconnect the battery ground cable.
2. Remove the air cleaner outlet tube. For additional information, refer to Section 303-12 .
3. Release the fuel pressure. For additional information, refer to Section 310-00 .
4. Disconnect the fuel supply hose spring lock coupling. For additional information, refer to Section 310-00 .
5. Remove the exhaust gas recirculation (EGR) valve and the exhaust manifold-to-EGR valve tube. For additional information, refer to Section 303-08 .
6. Remove the throttle body and spacer assembly.



7. Disconnect the vacuum hose.

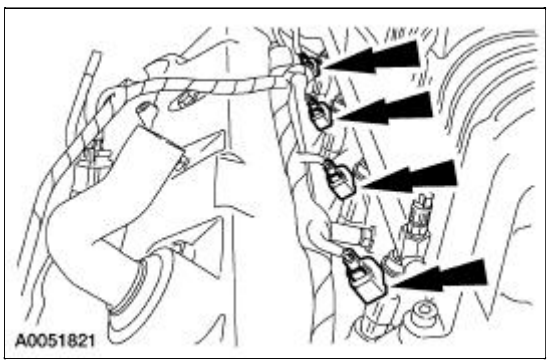


8. Disconnect the fuel pulse damper electrical connector and the vacuum hose.

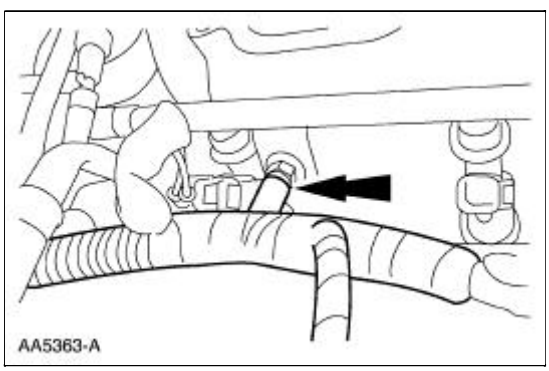


9. **NOTE:** RH shown, LH similar.

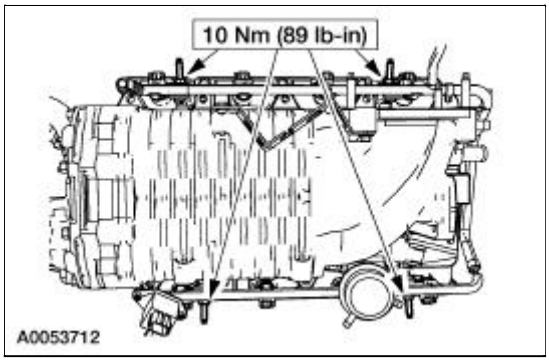
   Disconnect the eight fuel injector electrical connectors.



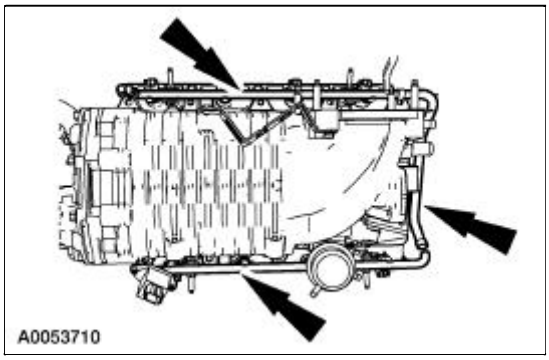
10. Separate the fuel charging wiring harness from the fuel injection supply manifold in four places.



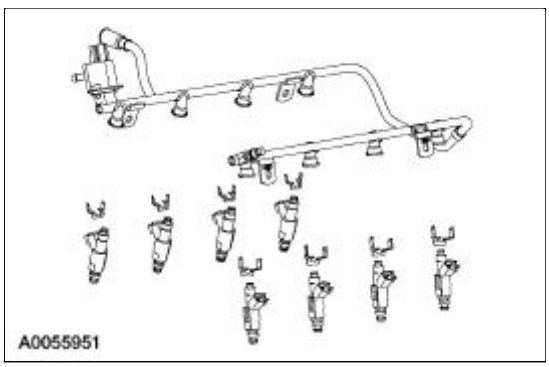
11. Remove the fuel supply manifold mounting studs.



12. Remove the fuel supply manifold and fuel injectors as an assembly.



13. Remove the anti-rotation clips and the fuel injectors from the fuel supply manifold.

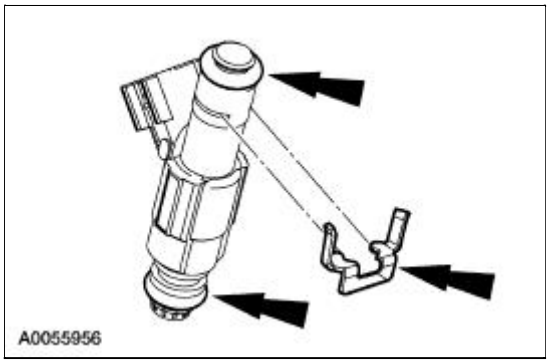


14. **NOTE:** Always install new O-rings.

    NOTE: Lubricate the O-rings with clean engine oil to aid installation.

    NOTE: Make sure the anti-rotation clips are installed.

    To install, reverse the removal procedure.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